COMMUNICATION TERMINAL FOR PROCESSING VOICE AND GRAPHICAL INFORMATION

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates generally to telecommunications and more particularly to a communication terminal capable of simultaneously transmitting voice and graphical representations.

2. Description of the Prior Art

In the field of voice and graphical communications, communication terminals are employed to transmit and receive voice and graphical information. In order to transmit and receive voice and graphical information, the communication terminal must be capable of processing voice communications and include a visual display unit for presenting graphical information.

In the past, such a communication terminal was disclosed in German Pat. DE-OS No. 24 33 667. This communication terminal was conventional in that a cathode-ray storage tube was employed as the display screen. The cathode-ray storage tube was intended as an attachment to a first channel in existing telephone equipment for processing voice communications. A second channel in the existing telephone equipment was employed for transmitting graphical representations. Another example of a communicaton terminal is a time work station capable of transmitting voice and graphical information via a common transmission line. Such a terminal was described in "The Electrical Communication Laboratories, NTT, Technical Publication," No. 282, June 1983. This terminal included a telephone set employed for initially establishing a connection and for processing voice communications. The terminal further included an input unit and a visual display unit for processing and displaying graphical presentations.

It is desirable to incorporate the voice communication and graphical presentation functions of a communication terminal into a single unit having a visual display unit for displaying the transmitted information. Both of the aforementioned communication terminals include a separate unit each for the voice communication function and the grpahical presentation function. Problems are associated with the construction of the prior art communication terminals. A first of these problems involves a higher technical investment requiring additional detail to coordinate separate units. A second problem is the larger space requirement for separate units while a third problem is the requirement that each separate unit be individually operated.

After consideration of the known prior art relevant to the instant invention, the aforementioned problems continue to exist.

SUMMARY OF THE PRESENT INVENTION

It is therefore an object of the present invention to provide an improved communicaton terminal having voice communication and graphical presentation functions incorporated in a single unit.

It is a further object to provide an improved communication terminal having a multi-purpose flat display screen.

It is a further object to provide an improved communication terminal having a compact design.

It is a further object to provide an improved communication terminal which is user-optimized.

Briefly, a preferred embodiment of the present invention includes a communication terminal having an external housing with a cradle and a telephone set electrically connected to the housing. The telephone set includes a handset which is supported by the cradle when not used and is employed for processing voice communications. An input device is mounted within the housing and is utilized to establish communication with at least one of a plurality of distant communication terminals. The input device includes a flat display screen having a presentation portion and a switching portion. The presentation portion is employed to display graphical an dialing information and the switching portion provides for the selection of one of a plurality of switching functions. The flat display screen includes a transparent resistive coating mounted thereon which is electrically conductive and has a plurality of electrode pairs distributed along the edges of the resistive coating which receive alternately applied voltages. A processing unit which is in electrical communication with the input device initiates the performance of the plurality of switching functions and the display and distribution of the graphical information. A circuit component connected to the resistive coating transmits the alternately applied voltages to the electrode pairs while a pen electrically connected to the circuit component and manually applied to the resistive coating of the display screen is employed to select one of the switching functions. The display screen is electrically touch sensitive with the pen extracting electrical voltage values from the resistive coating for identifying the location of the pen. A component coder receives, digitizes and transmits the extracted voltage values to the processing unit which provides a pulsed output. A control circuit controls the ditribution of the pulsed ouptut which includes an operating mode selection switch for selecting the mode of operation of the communication terminal.

Several modes of operation exist including various combinations of a telephone mode and a graphical presentation mode. The telephone mode is employed for dialing and establishing a communication link and for processing voice communications. Various switching functions are available for selection including the graphical presentation mode which permits the processing of graphical information. Upon lifting the handset, the terminal is automatically set to the telephone mode in which a dial keypad is represented on the display screen. A call number is dialed by touching the keypad. Once communication is established, the various switching functions may be selected by pen contact.

An advantage of the communication terminal of the present invention is that the voice communication and graphical presentation functions are incorporated in a single unit.

Another advantage is that the communication terminal of the present invention has a multi-purpose flat display screen.

A further advantage is that the communication terminal of the present invention has a compact design.

A further advantage is that the communication terminal of the present invention is user-optimized.

These and other objects and advantages of the present invention will no doubt become obvious to those of ordinary skill in the art after having read the following detailed description(s) of the preferred embodiment which are illustrated in the various drawing figures.